c) thereafter, maintaining said plasma to deposit a first layer of **[said]** a film over said substrate without biasing said plasma toward said substrate; and

d) thereafter, maintaining said plasma by maintaining coupling of said energy into said substrate processing chamber and biasing said plasma toward said substrate to deposit a second layer of said film over said first layer.

17. (Twice amended) A substrate processing system comprising:

a housing for forming a vacuum chamber;

a vacuum pump for evacuating said vacuum chamber;

a pedestal, located within said housing, configured to hold a substrate;

a gas distribution system fluidly coupled to said vacuum chamber;

a plasma generation system for forming a plasma from process gas within said vacuum chamber and for selectively biasing said plasma toward said substrate;

a controller for controlling said vacuum pump, said gas distribution system and said plasma generation system;

a memory coupled to said controller and storing a program for directing the operation of said system, said program including a set of instructions for depositing a film by

first, controlling said gas distribution system to introduce said process gas into said chamber;

second, controlling said plasma generation system to form a plasma from said process gas by coupling energy into said vacuum chamber and deposit a first layer of said film over said substrate without biasing said plasma towards said substrate; and

third, controlling said plasma generation system to maintain said **[inductively coupled]** plasma by maintaining coupling of said energy into said vacuum chamber and bias said plasma toward said substrate to deposit a second layer of said film over said first layer.

18. (Twice amended) The substrate processing system of claim 17 wherein said program further includes instructions for depositing a plurality of said first layers and said second layers by

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fourth, depositing a third layer of said film over said second layer by controlling said plasma generation system to maintain said plasma by maintaining coupling of said energy into said vacuum chamber and stop biasing said plasma toward said substrate;

fifth, depositing a fourth layer of said film over said third layer by controlling said plasma generation system to maintain said plasma by maintaining coupling of said energy into said vacuum chamber and bias said plasma toward said substrate; and

sixth, performing the second and third steps iteratively at least once until a desired thickness of said film is reached.

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19. The apparatus of claim 17 wherein said gas distribution system includes sources of silicon and oxygen fluidly coupled to said gas distribution system.

20. (Twice amended) A high-density plasma chemical vapor deposition system comprising:

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a housing for forming a vacuum chamber;

a pedestal, located within said housing, for holding a substrate;

means for introducing reactants into said vacuum chamber[,];

means for generating a plasma from said reactants by applying a sputtering power to said reactants to deposit a first layer of a film on said substrate during a first time period, said first layer for the reduction of mechanical stress in a subsequently deposited layer of a silicon oxide film; and

means for biasing said plasma toward said substrate during a second time period after said first time period to enhance a sputtering of said plasma while maintaining application of said sputtering power to said reactants and deposit said subsequent layer.

21. The apparatus of claim 20, further comprising means for maintaining a pressure of between about 0.001-10 torr in said vacuum chamber while said films are deposited.

22. The apparatus of claim 20, further comprising means for maintaining a wafer temperature of between about 100-500°C in said vacuum chamber while said films are deposited.

23. An integrated circuit formed on a semiconductor substrate, said integrated circuit comprising:

(a) a plurality of active devices formed in said semiconductor substrate;

(b) at least one metal layer formed above said semiconductor substrate; and

(c) at least one insulating layer formed between said metal layer and said semiconductor substrate, said insulating layer having a plurality of patterned holes filled with electrically conductive material to electrically connect selected portions of said metal layer to selected portions of said semiconductor substrate, wherein said insulating layer comprises a first silicon oxide layer and a second silicon oxide layer, said first and said second silicon oxide layers deposited using a high-density plasma chemical vapor deposition process, said first silicon oxide layer deposited for the reduction of mechanical stress in said second silicon oxide layer.

24. The integrated circuit of claim 23, further comprising:

(d) a second metal layer formed above said semiconductor substrate and below said at least one insulating layer;

(e) a second insulating layer formed between said second metal layer and said semiconductor substrate, said second insulating layer having a second plurality of patterned holes filled with electrically conductive material to electrically connect selected portions of said second metal layer to selected areas of said plurality of active devices.

25. The substrate processing system of claim 17 wherein said plasma is an inductively coupled plasma.

26. (Amended) The substrate processing system of claim 25 wherein said inductively coupled plasma is formed <u>from</u> said process gas using only RF energy applied to a coil disposed about the processing chamber.

27. The substrate processing system of claim 25 wherein said substrate processing chamber is a high-density plasma chemical vapor deposition chamber and said inductively coupled plasma is a high density plasma.

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28. (Amended) The substrate processing system of claim **[27]** <u>30</u> wherein the substrate is disposed on said second electrode and electric energy is applied to said first and second electrodes while maintaining the application of said RF energy.

29. The substrate processing system of claim 17 wherein said process gas introduced by said gas distribution system includes flows of silicon and oxygen.

30. The processing system of claim 17 wherein said plasma generating system includes a first electrode, a second electrode, and a coil disposed about the vacuum chamber, wherein said pedestal includes said second electrode.

31. The substrate processing system of claim 19 wherein said source of silicon contains silane.

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32. (Amended) A computer readable storage medium having program code embodied therein, said program code for controlling a substrate processing system, wherein said substrate processing system includes a processing chamber, a gas delivery system, a plasma generation system and a controller configured to control the gas delivery system and the plasma generation system said program code controlling the semiconductor processing system to process a wafer in the chamber in accordance with the following:

(i) a first set of computer instructions for controlling the gas delivery system to introduce a process gas into the processing chamber;

(ii) a second set of computer instructions for controlling the plasma generation system to form a plasma from the process gas by coupling energy into said processing chamber to deposit a first layer of a film over a substrate without biasing said plasma towards said substrate; and

(iii) a third set of computer instructions for controlling said plasma generation system to maintain said **[inductively coupled]** plasma by maintaining coupling of said energy into said processing chamber and to bias said plasma toward said substrate to deposit a second layer of said film over said first layer.

33. The computer readable storage medium of claim 32, wherein said plasma is an inductively coupled plasma.

34. The computer readable storage medium of claim 33 wherein said substrate processing system is a high density plasma system.

35. The computer readable storage medium of claim 32 wherein said process gas includes flows of silicon and oxygen.

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36. (New) The integrated circuit of claim 23 wherein the first silicon oxide layer is deposited on the substrate by placing the substrate in a process chamber and applying a sputtering power to reactants to generate a plasma in the process chamber, and wherein the